

OET SERIES - TRIPLE OUTPUT, 25 WATT

DESCRIPTION

OET triple output DC/DC converters provide 25 watts of output power in an industry-standard package. The OET series features excellent efficiency and industry-leading power density. The OET features open-frame packaging to provide maximum useable power with minimal thermal constraints. These units are fully compatible with production board washing processes.

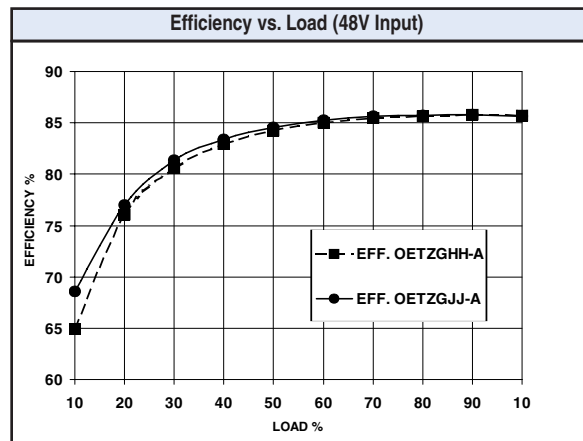
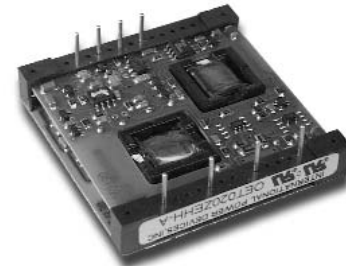
FEATURES

- Triple Output 2" x 2"
- Open-Frame Construction
- 1.5 Million Hours MTBF
- Short Circuit and Overvoltage Protection
- Input Undervoltage Lockout
- 24V or 48V Input Versions
- 1500V Isolation
- 100°C Baseplate Operation

TECHNICAL SPECIFICATIONS

| Input | |
|----------------------------------|-------------|
| Voltage Range | |
| 24 VDC Nominal | 18 - 36 VDC |
| 48 VDC Nominal | 34 - 75 VDC |
| Turn On Voltage 24V/48V Models | <17V / <34V |
| Turn On Hysteresis | 1V Nominal |
| Reflected Ripple Input Current | 50 mA pk-pk |
| Input Reverse Voltage Protection | Shunt Diode |

| Output | |
|--|------------------------------|
| Setpoint Accuracy | ±1% |
| Line Regulation V_{in} Min. - V_{in} Max., I_{out} Rated | 0.2% V_{out} |
| Load Regulation I_{out} Min. - I_{out} Max., V_{in} Nom. | 0.5% V_{out} |
| Secondary Output Regulation, All Line/Load Conditions | 10% V_{out} |
| Minimum Output Current | 10% I_{out} rated |
| Dynamic Regulation, Loadstep | 25% I_{out} |
| Pk Deviation | 4% V_{out} |
| Settling Time | 500 μ s |
| Short Circuit And Overcurrent Protection | Shutdown and Self-Recovering |
| Power Limit Threshold Range | 110 - 130% |
| Short Circuit | 200% I_{out} Nom. |
| OVP Trip Range | 115 - 140% V_{out} Nom. |
| OVP Type | Self-Recovering |



| Notes |
|--|
| † MTBF predictions may vary slightly from model to model. |
| Specifications typically at 25°C, normal line, and full load, unless otherwise stated. |
| Soldering Conditions: I/O pins, 260°C, ten seconds; fully compatible with commercial wave-soldering equipment. |
| Safety: Agency approvals may vary from model to model. Please consult factory for specific model information. |
| Units are water-washable and fully compatible with commercial spray or immersion post wave-solder washing equipment. |

| General | |
|--------------------------------|---------------------------|
| Switching Frequency | 500 kHz |
| Turn-On Time | 10ms |
| Remote Shutdown | Positive Logic |
| Isolation | |
| Input - Output | 1500 VDC |
| Input - Case | 1050 VDC |
| Output - Case | 1050 VDC |
| Temperature Coefficient | 0.03%/°C |
| Case Temperature | |
| Operating Range | -40 to +100°C |
| Storage Range | -40 to +125°C |
| Thermal Shutdown Range | 105 to 115°C |
| Humidity Max., Non-Condensing | 95% |
| Vibration, 3 Axes, 5 Min Each | 5 g, 10 - 55 Hz |
| MTBF† (Bellcore TR-NWT-000332) | 1.5 x 10 ⁶ hrs |
| Safety | UL, cUL, TUV |
| Weight (approx.) | 1.3 oz |

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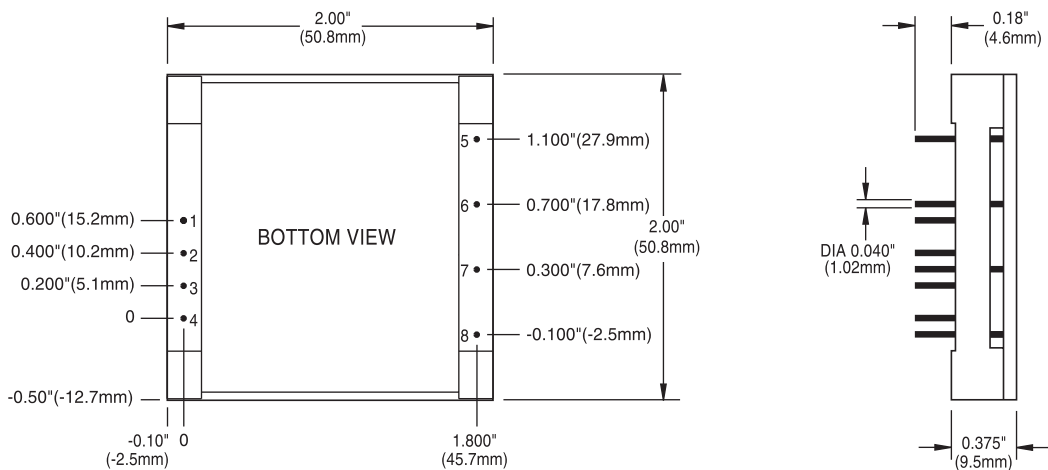
MODELS - (See the last page of this file for options.)

| MODEL | INPUT VOLTAGE (VOLTS) | INPUT VOLTAGE RANGE (VOLTS) | MAXIMUM INPUT CURRENT (AMPS)* | OUTPUT VOLTAGE (VOLTS) | RATED OUTPUT CURRENT (AMPS) | RIPPLE & NOISE pk-pk (mV) | TYPICAL EFFICIENCY** |
|--------------|-----------------------|-----------------------------|-------------------------------|------------------------|-----------------------------|---------------------------|----------------------|
| OET025YGHH-A | 24 | 18-36 | 1.8 | 5, ± 12 | 3.5, ± 0.31 | 50, 120 | 86% |
| OET025YGJJ-A | 24 | 18-36 | 1.8 | 5, ± 15 | 3.5, ± 0.25 | 50, 150 | 86% |
| OET020ZEHH-A | 48 | 34-75 | 0.7 | 3.3, ± 12 | 3.5, ± 0.35 | 50, 120 | 85% |
| OET020ZEJJ-A | 48 | 34-75 | 0.7 | 3.3, ± 15 | 3.5, ± 0.28 | 50, 150 | 85% |
| OET025ZGHH-A | 48 | 34-75 | 0.9 | 5, ± 12 | 3.5, ± 0.31 | 50, 120 | 85% |
| OET025ZGJJ-A | 48 | 34-75 | 0.9 | 5, ± 15 | 3.5, ± 0.25 | 50, 150 | 85% |

NOTES: * Maximum input current at minimum input voltage, maximum rated output power.

** At nominal V_{in} , rated output.

MECHANICAL DRAWING



| Thermal Impedance | |
|--------------------|-----------|
| Natural Convection | 11.0 °C/W |
| 100 LFM | 7.5 °C/W |
| 200 LFM | 5.0 °C/W |
| 300 LFM | 3.7 °C/W |
| 400 LFM | 3.1 °C/W |

Note:
Thermal impedance data is dependent on many environmental factors. The exact thermal performance should be validated for specific application.

| Pin | Function |
|-----|--------------------|
| 1 | + V_{in} |
| 2 | - V_{in} |
| 3 | case |
| 4 | enable |
| 5 | + V_{out} (aux) |
| 6 | + V_{out} (main) |
| 7 | common |
| 8 | - V_{out} (aux) |

| Tolerances | |
|--|----------------|
| Inches: | (Millimeters) |
| .XX ± 0.020 | .X ± 0.5 |
| .XXX ± 0.010 | .XX ± 0.25 |
| Pin: | |
| ± 0.002 | ± 0.05 |
| (Dimensions as listed unless otherwise specified.) | |

OPTIONS

When ordering equipment options, use the following suffix information. Select the option(s) that you prefer and add them to the model number. Example ordering options are located below the options table.

| OPTION | SUFFIX | APPLICABLE SERIES | REMARKS |
|--|--------|---|--|
| Negative Logic | N | HAS, HBD, HBS, HES, HLS, HLD, LES, QBS, QES, QLS, TES, TQD | TTL "Low" Turns Module ON TTL "High" Turns Module OFF |
| Lucent-Compatible Trim | T | HAS, HBD, HBS, HES, HLS, QBS, QES, QLS | |
| Terminal Strip | TS | XWS, XWD, XWT | |
| Trim | 1 | IAS, LES | |
| Enable | 2 | IAD, IAS, LES, SMS | |
| Trim and Enable | 3 | IAS, LES | |
| Pin Length and Heatsink Options | | | Standard Pin Length is 0.180" (4.6mm) |
| 0.110" (2.8mm) Pin Length | 8 | All Leaded Models | |
| 0.150" (3.8mm) Pin Length | 9 | All Leaded Models | |
| 0.24" (6.1mm) Horizontal Heatsink | 1H | All 1/4-Bricks, 1/2-Bricks, 3/4-Bricks, Full-Bricks (Except HLS, HLD, QLS, TLD, and TKD Packages) | Includes Thermal Pad |
| 0.24" (6.1mm) Vertical Heatsink | 1V | All 1/4-Bricks, 1/2-Bricks, 3/4-Bricks, Full-Bricks (Except HLS, HLD, QLS, TLD, and TKD Packages) | Includes Thermal Pad |
| 0.45" (11.4mm) Horizontal Heatsink | 2H | All 1/4-Bricks, 1/2-Bricks, 3/4-Bricks, Full-Bricks (Except HLS, HLD, QLS, TLD, and TKD Packages) | Includes Thermal Pad |
| 0.45" (11.4mm) Vertical Heatsink | 2V | All 1/4-Bricks, 1/2-Bricks, 3/4-Bricks, Full-Bricks (Except HLS, HLD, QLS, TLD, and TKD Packages) | Includes Thermal Pad |
| 0.95" (24.1mm) Horizontal Heatsink | 3H | All 1/4-Bricks, 1/2-Bricks, 3/4-Bricks, Full-Bricks (Except HLS, HLD, QLS, TLD, and TKD Packages) | Includes Thermal Pad |
| 0.95" (24.1mm) Vertical Heatsink | 3V | All 1/4-Bricks, 1/2-Bricks, 3/4-Bricks, Full-Bricks (Except HLS, HLD, QLS, TLD, and TKD Packages) | Includes Thermal Pad |

Example Options:

HBS050ZG-ANT3V = HBS050ZG-A with negative logic, Lucent-compatible trim, and 0.95" vertical heatsink.

LES015YJ-3N = LES015YJ with optional trim and enable, negative logic.

QBS066ZG-AT8 = QBS066ZG-A with Lucent-compatible trim and 0.110" pin length.

NUCLEAR AND MEDICAL APPLICATIONS - Power-One products are not authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the respective divisional President of Power-One, Inc.

TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.
